AVIATION

Poor Military Aircraft Must Be Avoided Through Research

National Advisory Committee for Aeronautics Lists Questions on Which Experts Advise Concentration

IT WOULD be as disappointing and disastrous for the United States to produce inferior military aircraft "as it is to try to win on the second best hand in a poker game," the National Advisory Committee for Aeronautics warned in its annual report transmitted by President Roosevelt to Congress.

"Without up-to-date, reliable results of scientific laboratory research, our Army and Navy would not be able, even with the most sincere cooperation of the industry, to design and produce aircraft with any assurance that they would not be 'second best' in time of war," the report continued.

But the Committee, which is the government's aeronautical research organization, expresses its belief that its laboratories, located at Langley Field, Va., are as yet unexcelled by those of any other single nation, despite the recent great expenditures on research organizations abroad.

The N.A.C.A. attempts to look in the future and anticipate some of the problems that may rise. Some of these are:

What are the maximum requirements for military and commercial aircraft going to be?

Will speeds in excess of 400 miles per hour be required?

How much will the size of commercial aircraft exceed 50 tons within the next few years?

What are the problems that will require scientific analysis before such craft can be successfully designed and constructed?

What of Airships?

Will airships be further developed for naval use or for transoceanic transportation and, if so, what are fundamental problems the N.A.C.A. should investigate?

Aeronautical research problems pressing for immediate solution, as listed by the N.A.C.A., are: The need for devising a method for studying the stalling characteristics of highly tapered wings; the determination of the necessary load factors and their variation with size and speed; the problem of reducing or eliminating if possible the formation of ice on wings, propellers, and control surfaces, and of providing effectively for the automatic removal of ice when it does form; problems involved in the design of wings, control surfaces, and flaps, as well as other devices to secure better control at low speeds incident to taking off and landing; problems of suppressing vibration and flutter, improving engine and propeller efficiency, capacity, and dependability, extending the range, enlarging the capacity, and at the same time constantly increasing the speed and safety of aircraft.

Science News Letter, January 22, 1938

ENTOMOLOGY

Transparent Plastic Used To Preserve Insects

PRECIOUS amber, prized by mankind as a gem and by the scientist for the remains of long-extinct insects preserved in it, has a modern rival in a new technique for preserving insects in transparent plastic materials.

Details of a process for putting insects inside a preserving shell of synthetic resin are independently reported by Dr. J. H. Hibben of the Geophysical Laboratory, Carnegie Institution of Washington, and Dr. Charles E. Sando of the U. S. Department of Agriculture.

Insects can be preserved intact inside the resin shell in much the same manner as insects that died thousands of years ago are today preserved in million-year-old amber, the fossilized resin of trees long extinct.

Using compounds with jaw-breaking names such as methyl methacrylate, the two scientists have succeeded in protecting the insects from the ravages of daily moisture changes which damaged unmounted specimens.

Theoretically simple—merely causing resin to form around the insect—the process entails a fair amount of painstaking work, requiring considerable patience and much skill. The specimen to be mounted must first be dried, without changing the colors or shape, then immersed in the compound and kept under heat and pressure until new compounds, called polymers, are formed in the original preservative.

MODERN "AMBER"

A long-horned beetle "under glass." The beetle is preserved inside a block of transparent plastic material. A special technique is required to mount specimens by this new method.

Drs. Hibben and Sando have succeeded in mounting insects, dry plant materials and a host of inorganic substances in plastic blocks. Using other methods, G. R. Fessenden, of the Department of Agriculture, has worked out means for "fixing" the colors and shapes of growing plants, so that they too may be mounted in plastic shells. Leaves and flowers, just as they come from the field, can be mounted to protect them from damage and preserved in a "fresh" state indefinitely.

Science News Letter, January 22, 1938

MEDICINE

Research on Polio Takes New Angle; Virus Strains Differ

A NEW lead on the fight against infantile paralysis appears in research reported by Drs. James D. Trask and John R. Paul of Yale University School of Medicine to the journal, *Science,* (Jan. 14.)

Efforts to prevent the disease by nasal sprays of chemicals to block the nerve of smell have been based on the generally accepted belief that the virus which causes infantile paralysis enters the body through the nasal endings of the nerve of smell. The Yale investigators now have evidence which casts some doubt on all of this.

Some strains of infantile paralysis virus will cause the disease in a large per-